

**NEW**

INDOOR UNITS



Split-system  
R-410A Refrigerant  
Indoor unit with centrifugal fan  
Configuration flexibility

## 40ZS/ZF

Cooling capacity 20-135 kW  
Heating capacity 20-145 kW  
Air flow 4000-24000 m<sup>3</sup>/h

The **40ZS/ZF** series are units with horizontal construction designed for installation indoors, connected to a network of ducts.

They are equipped with centrifugal fan (EC plug-fan also available in models 90 to 360), and expansion valve.

A vast number of options meet numerous operating demands.

All of the units are tested and checked in the factory.

### Range

- 1 circuit:
  - Models: 90 / 100 / 120 / 160 / 180 / 182
- 2 circuits:
  - Models: 200 / 240 / 320 / 360 / 420 / 485 / 540 / 600

## UNIT COMPONENTS

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

### Air circuit

- Coil(s) with copper pipes and aluminium fins.
- Centrifugal fan(s) coupling by pulleys and belts. Electric motor(s) with tensioner, class F, IP55 and internal thermal protection. Double-intake turbines, with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required.
- Reusable air filters, assembled on a frame.
- Condensate drain pan.

### Cooling circuit

- Thermostatic expansion valve(s) with external equalisation (check valve in ICZ series).

### Protections

- Main door switch.

### Optional

#### Outdoor environment

##### Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating (indoor unit and/or hot water coil).
- Condensate drain pan in stainless steel.

##### Humidity

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Stop-drop in the outdoor air intake.

#### Comfort / heating options

- Hot water auxiliary coil, with three-way valve. Two options:
  - Nominal coil for heating in cooling-only units.
  - Auxiliary coil for heating in heat pump units.

If the unit includes hot water coil and free-cooling, and works with negative temperatures of outdoor air, an anti-freeze thermostat as safety system is mandatory.

- Auxiliary electrical heaters. With this option, the air flow controller is included.

#### Comfort / indoor air quality options

- Filtration of the supply air:
  - Gravimetric filter G4.
  - Gravimetric filter G4 + creased opacimetric filters F6 to F9.
- Filtration of the return air (with centrifugal return fan):
  - Gravimetric filter G4.
  - Gravimetric filter G4 + creased opacimetric filters F6.

### Safety

- Soft starter of the supply and/or return centrifugal fans which prolongs the set time mainly aimed at installations with cloth ducts. Compulsory for motors with an output of 15 kW and above.
- Differential pressostat for the detection of clogged filters.

- Differential pressostat for control of air flow.
- Smoke detecting station in accordance with the NF S 61-961 standard.
- Refrigerant leak detector (with CARRIERtc control). This allows prompt identification of gas leaks, guaranteeing the safety of any people in the vicinity. Installation of the device ensures compliance with European standards F-GAS and EN378 as well as ASHRAE 15.

### Installation

- Antivibration mounts made of rubber.
- Position of supply and/or return of the indoor unit air.
- Supply and/or return fan with high available pressure.
- Electronic plug-fan(s) in air supply (upon request).
- Assemblies with **mixing box** for air renewal and free-cooling:
  - 2 motorised dampers:
    - MS assembly: outdoor air intake.
  - 3 motorised dampers:
    - MC assembly: outdoor air intake, air extraction and centrifugal return (models 90 to 180 and 420 to 600) or plug-fan (models 420 to 600 with MC0 assembly). Note: Plug-fan in models 420 to 600 with MC0 assembly: upon request.

All the possible combinations of "Assemblies with mixing boxes" are represented on the following page.



### Free-cooling

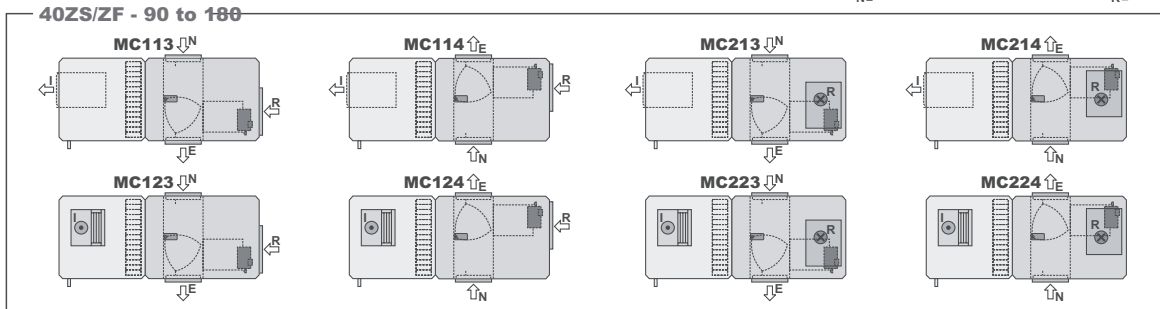
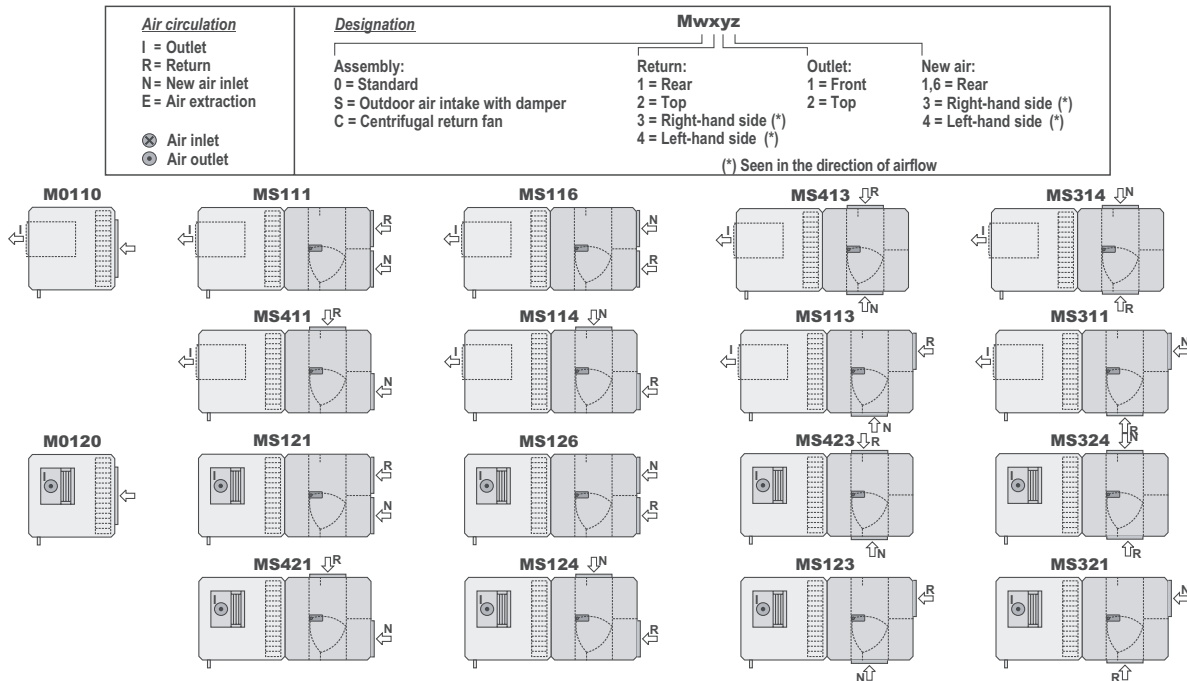


On units with mixing box, the free-cooling can be managed by the electronic control. This function allows the outdoor air conditions to be taken advantage of when these are more favourable than those of the return (or ambient) air. As such, this allows the cooling capacity to be reduced under these circumstances. The percentage of air renewal will range from 0% to 100%. There are three options for the free-cooling management:

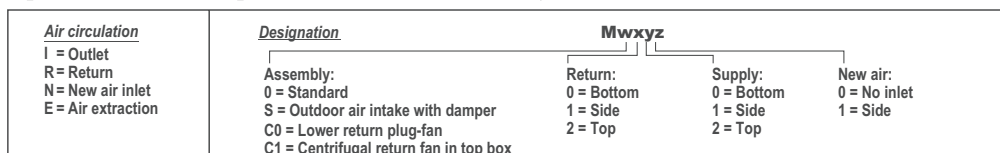
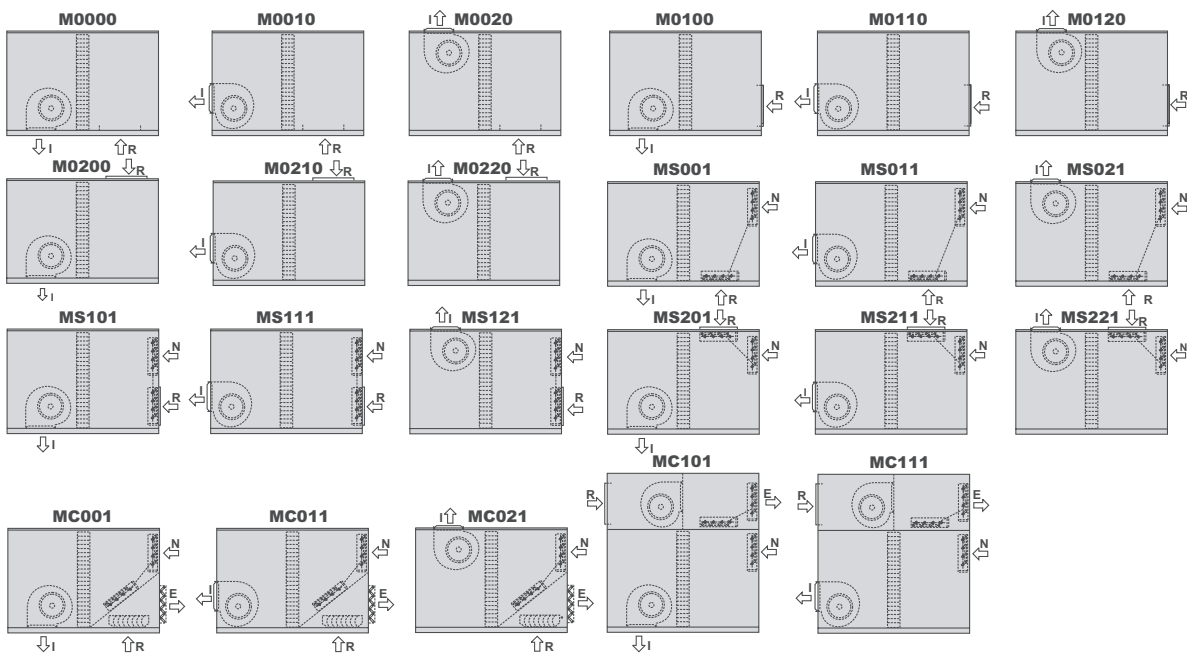
- Thermal, with comparison of temperatures.
- Enthalpic, with comparison of enthalpies.
- Thermoenthalpic, with comparison of enthalpies and a correction for temperature.

Note: With enthalpic or thermoenthalpic free-cooling change to the CARRIERtc electronic control is obligatory

40ZS/ZF - 90 to 360: assemblies with mixing box (plan view)



40ZS/ZF - 420 to 600: assemblies with mixing box (raised view)



## TECHNICAL CHARACTERISTICS

40ZS/ZF		90	100	120	160	180	182	200	
Centrifugal fan	Nominal air flow (m <sup>3</sup> /h)	4.000	4.600	5.200	7.000	7.000	8.000	9.200	
	Available static pressure (mm.w.c)	15	15	15	15	15	15	20	
	Number / turbines	1 / 1				2 / 2			
	Motor output (kW)	1,1	1,1	1,1	1,5	1,5	2 x 0,75	2 x 1,1	
	Power input (kW)	0,61	0,83	0,88	1,08	1,08	2 x 0,59	2 x 0,91	
	Speed (r.p.m.)	985	1049	916	761	761	963	1126	
Max. absorbed current	Fan (A)	2,7	2,7	2,7	3,6	3,6	4,2	5,4	
Dimensions	Length (mm)	1.190			1.520		2.144		
	Width (mm)	950			1.028		950		
	Height (mm)	731			731		731		
Weight	(kg)	147	147	190	199	199	262	262	

40ZS/ZF		240	320	360	420	485	540	600	
Centrifugal fan	Nominal air flow (m <sup>3</sup> /h)	10.300	14.000	15.500	18.000	18.200	20.400	24.000	
	Available static pressure (mm.w.c)	20	20	20	20	20	20	20	
	Number / turbines	2 / 2			1 / 3				
	Motor output (kW)	2 x 1,5	2 x 1,5	2 x 2,2	4	4	4	5,5	
	Power input (kW)	2 x 0,94	2 x 1,15	2 x 1,39	2,52	2,82	2,96	3,40	
	Speed (r.p.m.)	974	789	816	677	677	643	681	
Max. absorbed current	Fan (A)	7,2	7,2	10,0	9,0	9,0	9,0	11,6	
Dimensions	Length (mm)	2.144	2.804		2.853				
	Width (mm)	950	1.028		2.160				
	Height (mm)	731	800		1.524				
Weight	(kg)	262	365	365	920	920	963	964	

## SOUND LEVELS dB(A)

### Sound power level on the indoor unit

Sound power level in the indoor fan supply to be taken into account for the silencer calculation:

40ZS/ZF	90	100	120	160	180	182	200	240	320	360	420	485	540	600
Total dB(A)	79	82	80	80	80	82	85	82	83	85	86	87	89	92

## OPTIONAL

### Lower radial centrifugal return fan (MC0 assembly)

40ZS/ZF		420	485	540	600
Nominal air flow	(m <sup>3</sup> /h)	18.000	18.200	20.400	24.000
Available static pressure	(mm.c.a.)	21	21	19	17
Number / Diameter		4 / 500			
Motor output	(kW)	2 x (2,7 + 1,4)			
Speed	(r.p.m.)	2 x 1.700 / 2 x 1.375			
Maximum absorbed current	(A)	14,6			

## OPTIONAL

### Centrifugal return fan (MC1 and MC2 assembly)

40ZS/ZF		90	100	120	160	180	420	485	540	600	
Nominal air flow	(m <sup>3</sup> /h)	4.000	4.600	5.200	7.000	7.000	18.000	18.200	20.400	24.000	
Available static pressure	(mm.w.c)	15	15	15	15	15	20	20	20	20	
Number / turbines		1 / 1					1 / 2				
Motor output	(kW)	0,75	1,1	0,75	1,1	1,1	4	4	5,5	5,5	
Power input	(kW)	0,48	0,65	0,58	0,72	0,72	2,73	2,85	3,57	3,86	
Speed	(r.p.m.)	834	882	689	578	578	602	616	644	619	
Maximum absorbed current	(A)	2,1	2,7	2,1	2,7	2,7	9,0	9,0	11,6	11,6	

### Nominal hot water coil

Hot water coil assembled inside the unit with a three-way valve managed by the unit control for heating in cooling-only unit.

40ZS/ZF		90	100	120	160	180	182	200	240	320	360	420	485	540	600	
Air pressure drop	(mm.w.c)	3,0	3,8	4,7	4,4	4,4	2,8	3,5	4,1	3,6	4,2	2,0	2,1	2,5	3,2	
Water 80/60°C and inlet air 20°C	Heating capacity	(kW)	29,1	31,7	34,2	57,9	57,9	71,2	77,6	83,0	121,2	128,9	172,3	173,5	186,3	205,5
	Water flow	(m <sup>3</sup> /h)	1,3	1,4	1,5	2,6	2,6	3,2	3,4	3,7	5,4	5,7	7,4	7,5	8,0	8,8
	Water pressure drop	(m.w.c)	0,3	0,4	0,4	1,4	1,4	0,7	0,9	1,0	2,1	2,3	0,3	0,3	0,3	0,4
Water 90/70°C and inlet air 20°C	Heating capacity	(kW)	36,2	39,5	42,7	71,4	71,4	87,8	95,9	102,6	148,9	158,4	212,9	214,5	230,5	254,7
	Water flow	(m <sup>3</sup> /h)	1,6	1,8	1,9	3,2	3,2	3,9	4,3	4,6	6,6	7,0	9,2	9,2	9,9	11,0
	Water pressure drop	(m.w.c)	0,5	0,6	0,6	2,1	2,1	1,1	1,2	1,4	3,0	3,3	0,4	0,4	0,4	0,4
Weight (empty)	(kg)	10,4	10,4	10,4	16,3	16,3	23,4	23,4	34,4	34,4	34,4	62,5	62,5	62,5	62,5	
Diameter of hydraulic connections		1"			1 1/4"				1 1/2"			2"				

**Note:** with stop-drop in the indoor air coil it is not possible to assemble the hot water coil.

### Auxiliary hot water coil

Hot water coil assembled inside the unit with a three-way valve managed by the unit control for back-up during heating in heat pump units. In this case the air inlet temperature matches the air supply temperature of the indoor coil.

40ZS/ZF		90	100	120	160	180	182	200	240	320	360	420	485	540	600	
Air pressure drop	(mm.w.c)	2,9	3,6	4,5	4,2	4,2	2,7	3,4	4,0	6,6	7,8	1,9	2,0	2,4	3,2	
Water 80/60°C	Heating capacity	(kW)	12,9	13,7	14,9	23,0	23,0	30,2	31,6	33,6	40,9	43,7	66,1	60,8	63,6	76,9
	Water flow	(m <sup>3</sup> /h)	0,6	0,6	0,7	1,0	1,0	1,3	1,4	1,5	1,8	1,9	2,9	2,7	2,8	3,4
	Water pressure drop	(m.w.c)	0,1	0,1	0,2	0,5	0,5	0,4	0,5	0,5	0,8	0,9	0,6	0,5	0,6	0,8
Water 90/70°C	Heating capacity	(kW)	17,9	19,2	20,8	31,5	31,5	41,2	43,5	46,5	56,3	60,1	90,1	85,0	89,8	106,1
	Water flow	(m <sup>3</sup> /h)	0,8	0,9	0,9	1,4	1,4	1,8	1,9	2,0	2,5	2,6	4,0	3,8	3,9	4,6
	Water pressure drop	(m.w.c)	0,2	0,3	0,3	0,8	0,8	0,8	0,9	1,0	1,4	1,6	1,1	1,0	1,1	1,5
Weight (empty)	(kg)	7,8	7,8	7,8	11,0	11,0	16,3	16,3	16,3	16,3	16,3	38,4	38,4	38,4	38,4	
Diameter of hydraulic connections		3/4"				1"										

**Note:** with stop-drop in the indoor air coil it is not possible to assemble the hot water coil.

## OPTIONAL

### Electrical heaters

**Important:** with this option, the air flow controller is included.

Standard assembly in two stages (optional assembly in one stage with no over price).

In the case of two indoor units with the one outdoor unit the assembly of the support is not possible in two stages (each indoor unit is equivalent to 1 stage).

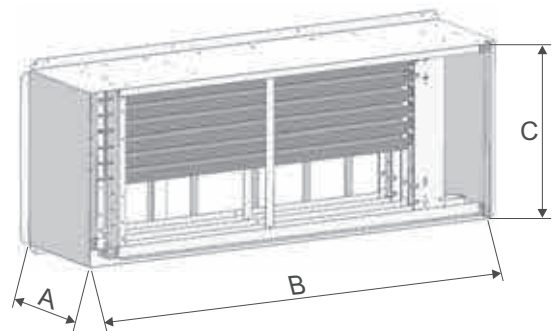
#### Models 90 to 360 (assembled in the fan outlet): available capacities

40ZS/ZF	Total output (kW)	6	9	12	15	18	24	30	36
	Stage power (kW)	3 + 3	3 + 6	6 + 6	6 + 9	9 + 9	12 + 12	15 + 15	18 + 18
Current (A) (400V / IIIph / 50Hz)	90 / 100 / 120	8,7	13,0	17,3	unavailable				
	160 / 180	unavailable		17,3	21,7	26,0	unavailable		
	182 / 200 / 240 / 320 / 360	unavailable			21,7	26,0	34,6	53,4	52,0

**Note:** in models with centrifugal return fan it is not possible to assemble electrical heaters with outputs of 30 and 36 kW.

#### Frame for assembly of the auxiliary heater in the supply fan outlet:

40ZS/ZF	Total output	Dimensions (mm)		
		A	B	C
90 / 100 / 120 (1 supply outlet)	6 / 9 kW (1 row)	150	482	443
	12 kW (2 rows)	262	482	443
160 / 180 (1 supply outlet)	12 / 15 / 18 kW (1 row)	189	1.142	443
182 / 200 / 240 (2 supply outlets)	15 / 18 kW (1 row)	189	1.142	443
	24 / 30 / 36 kW (2 rows)	297	1.142	443
320 / 360 (2 supply outlets)	15 / 18 / 24 / 30 / 36 kW (1 row)	189	1.142	443



This frame is designed with side access for maintenance purposes.

In models 90 to 120 each of the rows of electrical heaters has an output of 1 kW. As from model 160, the output of each row will be 2 or 3 kW according to the total output.

In models with two supply fan outlets (two frames), as well as in the case of 1 supply outlet with 2 rails, the electrical heaters are distributed as symmetrically as possible between both frames.

#### Models 420 to 600 (assembled inside the unit): available capacities

40ZS/ZF	Total output (kW)	36	45	54	72
	Stage power (kW)	18 + 18	18 + 27	27 + 27	36 + 36
Current (A) (400V / IIIph / 50Hz)	420 / 485	52,0	65,0	78,0	unavailable
	540 / 600	unavailable	65,0	78,0	104,0

### Stop-drop in the indoor air coil

Air flow as from which it is recommended to install a stop-drop in the indoor coil.

40ZS/ZF	90	100	120	160	180	182	200	240	320	630	420	485	540	600
Air flow (m <sup>3</sup> /h)	5.246		7.283		11.110			16.566		30.089				

**Note:** for operating conditions with high dehumidification in the indoor coil (e.g. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

**Note:** with hot water coil (nominal or auxiliary) it is not possible to assemble the stop-drop.